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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,315	11/19/2003	Tsuyoshi Sano	U 014901-6	6492

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NEW YORK, NY 10023

EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/717,315

Applicant(s)

SANO ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 9/26/06. It is noted that applicants filing on 9/26/06 of English translation of foreign priority document previously filed 3/11/04 perfects the foreign priority filing date of 11/28/02.

In light of the new grounds of rejection set forth below, the following action is non-final.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-2, 12, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (U.S. 6,114,411).

Nakamura et al. disclose black ink comprising water, 0.1-5% carbon black, and 0.2-20% resin as part of resin emulsion. It is calculated that the solid content of the resin emulsion is 0.02-200 times the content of the carbon black. There is also disclosed recording method wherein the ink is ejected from printer to form recorded matter (col.3, lines 14-17, 35-36, and 66-67 and col.7, lines 7-8).

It is noted that the present claims require solid content of fine particle emulsion that is 20 times or more the content of the carbon black while Nakamura et al. disclose solid content of fine particle emulsion that is 0.02-200 times or more the content of the carbon black.

However, as set forth in MPEP 2144.05, in the case where the claimed range "overlap or lie inside ranges disclosed by the prior art", a *prima facie* case of obviousness exists, *In re*

Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Further, Nakamura et al. disclose the use of 0.01-10% pigment such as carbon black and disclose that such amount is used to secure sufficient print density and higher jetting stability (col.3, line 66-col.4, line 7). Nakamura et al. also disclose the use of 0.2-20% resin (as part of the resin emulsion) and disclose that such amount is used to secure an even better print density and to control the viscosity of the ink to proper value (col.7, lines 7-16).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to choose amount of resin and carbon black, including amounts such that the solid content of fine particle emulsion is 20 times or more the content of the carbon black as presently claimed, in order to produce ink that has good print density, jetting stability and print quality and possesses proper viscosity, and thereby arrive at the claimed invention.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. as applied to claims 1-2, 12, and 18-19 above, and further in view of EP 1219689.

The difference between Nakamura et al. and the present claimed invention is the requirement in the claims that the black ink comprises complementary color.

EP 1219689, which is drawn to ink jet inks, discloses adding complementary blue pigment to black ink in order to modify yellowing property of carbon black present in the black ink (paragraphs 3, 5, and 7).

In light of the motivation for using complementary color disclosed by EP 1219689 as described above, it therefore would have been obvious to one of ordinary skill in the art to use

such complementary color in the black ink of Nakamura et al. in order to prevent yellowing of carbon black present in the black ink, and thereby arrive at the claimed invention.

5. Claims 1-10, 12-13, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yatake (U.S. 6,670,409).

Yatake discloses ink set comprising plurality of light color inks and plurality of dark color inks wherein the light color inks include light black ink comprising water, 0.01-10% carbon black, and 0.05-10% pH-adjusted fine polymer particle emulsion. It is calculated that the solid content of the fine polymer particle emulsion is 0.05 (0.5/10) to 1000 (10/.01) times the content of the carbon black. Yatake further disclose that the pH adjusted polymer is prepared by polymerizing ethylenically unsaturated carboxylic acid and other monomer copolymerizable therewith and adjusting the pH of the copolymer to 8. Given that the ethylenically unsaturated carboxylic acid is utilized in small amounts in the polymer (see Table 1), it is clear that the polymer would intrinsically possess acid value as presently claimed. There is also disclosed recording method wherein the ink is ejected from printer to form recorded matter (col.1, lines 10-15, col.2, lines 50-67, col.3, lines 48-54, col.3, lines 48-54, col.3, line 66-col.4, line 29, col.4, line 64-col.5, line 3, col.5, lines 4-25 and 49-54, col.6, lines 4-20 and 50-51, col.7, lines 53-60, col.8, lines 12-14, and col.12, line 29-col.13, line 15).

The difference between Yatake and the present claimed invention is the requirement in the claims of (a) solid content of fine particle emulsion to the content of the carbon black and (b) process for preparing the pH adjusted resin as required in present claim 3.

With respect to difference (a), it is noted that the present claims require solid content of fine particle emulsion that is 20 times or more the content of the carbon black while Yatake disclose solid content of fine particle emulsion that is 0.05-1000 times or more the content of the carbon black.

However, as set forth in MPEP 2144.05, in the case where the claimed range “overlap or lie inside ranges disclosed by the prior art”, a *prima facie* case of obviousness exists, *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Further, Yatake discloses the use of 0.01-10% pigment such as carbon black and disclose that if a lower amount is used, the density of the printed image is inadequate and that if a higher amount is used, ink ceases to be light in color (col.7, lines 53-65). Nakamura et al. also disclose the use of 0.5-10% resin (as part of the polymer emulsion) and disclose that if a lower amount is used, little effectiveness in improvement of smear fastness and that if a higher amount is used, no improvement in smear resistance (col.4, lines 15-29 and col.4, line 64-col.65, line 3).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to choose amount of polymer and carbon black, including amounts such that the solid content of fine particle emulsion is 20 times or more the content of the carbon black as presently claimed, in order to produce ink that has good print density, smear resistance, and desired color, and thereby arrive at the claimed invention.

With respect to difference (b), it is noted that there is no disclosure in Yatake of process for preparing the pH adjusted resin as required in claim 3.

However, it is noted that “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process”, *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) . Further, “although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product”, *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983).

Therefore, absent evidence of criticality regarding the presently claimed process for preparing the pH adjusted resin and given that Yatake disclose product as presently claimed, i.e. pH adjusted resin obtained from ethylenically unsaturated carboxylic acid and other monomer copolymerizable therewith which is adjusted to pH of 8, it is clear that Yatake meets the requirements of present claim 3.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yatake as applied to claims 1-10, 12-13, and 18-19 above, and further in view of EP 1219689.

The difference between Yatake and the present claimed invention is the requirement in the claims that the black ink comprises complementary color.

EP 1219689, which is drawn to ink jet inks, discloses adding complementary blue pigment to black ink in order to modify yellowing property of carbon black present in the black ink (paragraphs 3, 5, and 7).

In light of the motivation for using complementary color disclosed by EP 1219689 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such complementary color in the black ink of Yatake in order to prevent yellowing of carbon black present in the black ink, and thereby arrive at the claimed invention.

7. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yatake as applied to claims 1-10, 12-13, and 18-19 above, and further in view of GB 2370580.

The difference between Yatake and the present claimed invention is the requirement in the present claims of specific ink set comprising black ink, black ink for medium gradation, and darker black ink.

Yatake discloses ink set comprising plurality of light color inks and plurality of dark color inks wherein the inks include light black ink and black ink comprising carbon black and fine particle polymer emulsion, however, there is no disclosure of ink set comprising black ink, black ink for medium gradation, and darker black ink as presently claimed.

GB 2370580 discloses ink set comprising black ink comprising about 3% to about 5% carbon black, dilute black ink comprising about 1% to about 4% carbon black, more dilute black ink comprising about 0.5% to about 3% carbon black, and most dilute black ink comprising about 0.1 to about 1% carbon black. The motivation for using such ink set is to produce high quality images of good image tone and high maximum density wherein the images possess high lightfastness (page 3, lines 12-13 and 19-23, page 7, lines 4-30, and page 8, lines 4-19).

In light of the motivation for using specific inks set disclosed by GB 2370580 as described above, it therefore would have been obvious to one of ordinary skill in the art to use

such ink set in Yatake in order to produce high quality images of good image tone and high maximum density wherein the images possess high lightfastness, and thereby arrive at the claimed invention.

Response to Arguments

8. Applicants' arguments regarding Kataoka et al. '210 (U.S. 2005/0203210) and Kataoka et al. '626 (U.S. 2003/0189626) have been considered but they are moot in view of the discontinuation of the use of these references against the present claims.

9. Specifically, applicants argue that the comparative data set forth in the present specification establishes the criticality of using solid content of fine particle emulsion that is 20 times or more the content of the carbon black.

Applicants note that the data compares inks within the scope of the present claims, i.e. comprising solid content of fine particle emulsion that is 20 times or more the content of the carbon black (examples 1-4), with ink outside the scope of the present claims, i.e. comprising solid content of fine particle emulsion that is less than 20 times the content of the carbon black (comparative example 1). Applicants argue that the data establishes that the inks of the present invention are superior given that the inks do not exhibit golden gloss while the comparative inks do exhibit golden gloss.

However, it is the examiner's position that the data is not persuasive for the following reasons. Firstly, applicants argue that the ink of comparative example 1 utilizes fine particle emulsion having solid content in an amount less than 20 times the content of the carbon black.

However, it appears that for comparative example 1, the solid content of the fine particle emulsion is 20 times or more the content of the carbon black and thus, falls within the scope of the present claims. That is, it is calculated that the solid content of the fine particle emulsion is 21.1 times the content of the carbon black, i.e. $(0.33 * 6.7 + 0.3 * 6.7) / 0.2$. Thus, it is not clear why a comparative example has solid content of fine particle emulsion to content of carbon black that falls within the scope of the present claims. Further, if the solid content of fine particle emulsion to content of carbon black does fall within the scope of the present claims, it is not clear why the ink exhibits golden gloss. Clarification is requested.

It is noted that comparative example 2 has solid content of the fine particle emulsion that is 14.85 times the content of the carbon black and thus, falls outside the scope of the present claims. However, it is the examiner's position that this data is not persuasive given that there is not proper side-by-side comparison between the inventive inks (example 1-4) and the ink of comparative example 2. That is, the ink of comparative example 2 does not comprise pH adjusted resin emulsion A as do the inks of examples 1-4. Thus, it is not clear if the differences between the inks of examples 1-4 and the ink of comparative example 2 is due to the ratio of solid content of fine particle emulsion to content of carbon black or to the different fine particle emulsion utilized.

In light of the above, it is the examiner's position that the data is not successful in establishing unexpected or surprising results over the "closest" prior art, namely Nakamura et al. or Yatake.

Applicants argue that Nakamura et al. is not a proper anticipatory reference against the present claims.

Upon reconsideration, the examiner agrees that Nakamura et al. is not applicable against the present claims under 35 USC 102. However, it is noted that Nakamura et al. is now applied against the present claims under 35 USC 103 as set forth in paragraph 3 above.

Applicants argue that the ratio of solid content of the fine particle emulsion to the content of the carbon black is a result effective variable and that neither Nakamura et al. or Yatake explicitly disclose such ratio and thus, do not show or suggest the result effective nature of the variable.

It is agreed that neither Nakamura et al. or Yatake explicitly disclose ratio of solid content of fine particle emulsion to content of carbon black as presently claimed.

However, it is noted that Nakamura et al. disclose the use of 0.01-10% pigment and disclose that such amount is used to secure sufficient print density and higher jetting stability (col.3, line 66-col.4, line 7). Nakamura et al. also disclose the use of 0.2-20% resin (as part of the resin emulsion) and disclose that such amount is used to secure an even better print density and to control the viscosity of the ink to proper value (col.7, lines 7-16). Thus, it is clear that Nakamura et al. recognizes each of the pigment and resin as a result effective variable and thus, it is clear that the ratio of resin, i.e. solid content of fine particle emulsion, to content of carbon black, is also a result effective variable.

Similarly, Yatake discloses the use of 0.01-10% pigment and disclose that if a lower amount is used, the density of the printed image is inadequate and that if a higher amount is used,

ink ceases to be light in color (col.7, lines 53-65). Yatake also disclose the use of 0.5-10%% resin and disclose that if a lower amount is used, little effectiveness in improvement of smear fastness and that if a higher amount is used, no improvement in smear resistance (col.4, lines 15-29 and col.4, line 64-col.65, line 3). Thus, it is clear that Yatake recognizes each of the pigment and resin as a result effective variable and thus, it is clear that the ratio of resin, i.e. solid content of fine particle emulsion, to content of carbon black, is also a result effective variable.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to choose amount of resin and carbon black, including amounts such that the solid content of fine particle emulsion is 20 times or more the content of the carbon black as presently claimed, in either Nakamura et al. or Yatake, and thereby arrive at the claimed invention.

Applicants argue that the examples of Yatake do not disclose ink having solid content of fine particle emulsion in amount 20 times or more the content of the carbon black and thus, teaches away from the present invention.

However, “applicant must look to the whole reference for what it teaches. Applicant cannot merely rely on the examples and argue that the reference did not teach others”, *In re Courtright*, 377 F.2d 647, 153 USPQ 735,739 (CCPA 1967). Further, “nonpreferred disclosures can be used. A nonpreferred portion of a reference disclosure is just as significant as the preferred portion in assessing the patentability of claims”, *In re Nehrenberg*, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). A fair reading of Yatake as a whole discloses solid content of fine particle emulsion that is 0.05-1000 times the content of carbon black.

Applicants also argue that there is no motivation to combine Yatake with GB 2370580 given that there is no disclosure in Yatake of specific three black inks as required in present claims 14-17 and no disclosure in GB 2370580 of black inks containing fine particle emulsion and thus, no disclosure in GB 2370580 that the solid content of fine particle emulsion is 20 times or more the content of carbon black as presently claimed.

It is agreed that there is no disclosure in Yatake of ink set comprising black ink, black ink for medium gradation, and darker black ink as required in present claims 14-17. This is why Yatake is used in combination with GB 2370580.

Specifically, Yatake discloses ink set comprising plurality of light color inks and plurality of dark color inks wherein the inks include light black ink and black ink comprising carbon black and fine particle polymer emulsion, however, there is no disclosure of ink set comprising black ink, black ink for medium gradation, and darker black ink as presently claimed.

GB 2370580 discloses ink set comprising black ink comprising about 3% to about 5% carbon black, dilute black ink comprising about 1% to about 4% carbon black, more dilute black ink comprising about 0.5% to about 3% carbon black, and most dilute black ink comprising about 0.1 to about 1% carbon black. The motivation for using such ink set is to produce high quality images of good image tone and high maximum density wherein the images possess high lightfastness.

In light of the motivation for using specific inks set disclosed by GB 2370580 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such ink set in Yatake in order to produce high quality images of good image tone and high

maximum density wherein the images possess high lightfastness, and thereby arrive at the claimed invention.

While it is agreed that there is no disclosure in GB 23705810 of fine particle emulsion, it is noted that GB 2370580 is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely specific ink set of black inks used to produce high quality images of good image tone and high maximum density, and in combination with the primary reference, discloses the presently claimed invention.

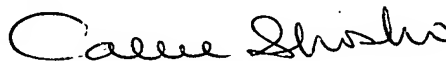
In light of the above, it is the examiner's position that Nakamura et al. and Yatake remain relevant references against the present claims.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1714

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Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
12/3/06